



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,894	02/01/2001	Haim Weissman	010077	8144

23696 7590 08/13/2003

Qualcomm Incorporated  
Patents Department  
5775 Morehouse Drive  
San Diego, CA 92121-1714

EXAMINER

LELE, TANMAY S

ART UNIT	PAPER NUMBER
----------	--------------

2684

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/775,894

Applicant(s)

WEISSMAN, HAIM

Examiner

Tanmay S Lele

Art Unit

2684

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 February 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 2 and 11, it was not understood why a “diversity transceiver” was used, as the usage described pertained only to receive functions and no mention of transmission was noted in the specification by the “diversity transceiver” (note that transceiver is defined as a transmitter and receiver). For purposes of examination, it was assumed that the device only performed reception functions, as per the specification (page 6, lines 5 – 8 and page 7, lines 13 – 16).

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 7, 8, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Cook et al. (Cook, US Patent No. 6,005,884).

Regarding claim 7, Cook teaches of a method for wireless communication,

Art Unit: 2684

comprising: a) positioning a plurality of slave transceivers within an enclosed region (Figure 1 and column 1, lines 44 – 57), at least one of the slave transceivers comprising a slave central processing unit (slave-CPU), at least one of the slave-CPU's being a controlling slave-CPU adapted to control an adjustable operational parameter of the slave transceiver that comprises the controlling slave-CPU (Figure 5 and column 22, lines 7 – 23); b) receiving, within one of the plurality of slave transceivers, a reverse radio frequency (RF) signal (Figures 1 and 5 and column 9, lines 18 – 33 and column 22, lines 7 – 23); and c) controlling, in the receiving slave transceiver, the adjustable operational parameter of the receiving slave transceiver in response to a characteristic of the reverse RF signal (Figures 1 and 5 and column 22, lines 7 – 23).

Regarding claim 8, Cook teaches all the claimed limitations as recited in claim 7. Cook further teaches of wherein the adjustable operation parameter is the gain of an amplifier within the slave transceiver (column 21, lines 44 – 57 and column 22, lines 7 – 23).

Regarding claim 12, Cook teaches all the claimed limitations as recited in claim 7. Cook further teaches of comprising: a) receiving an instruction in a slave-CPU's from a management unit (column 19, lines 41 – 58); b) in the receiving slave-CPU, setting at least one adjustable operational parameter of the slave transceivers comprising the receiving slave-CPU to initial values in response to the received instruction (column 19, lines 41 – 58 and column 22, lines 7 – 22).

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 3 – 6, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook et al. (Cook, US Patent No. 6,005,884) in view of Heiman et al. (Heiman, US Patent No. 6,002,918).

Regarding claim 1, Cook teaches of 1. An apparatus for wireless communication, comprising: a) a plurality of slave transceivers spatially separated from one another within an enclosed region (Figure 1 and column 1, lines 44 – 57), each of the slave transceivers comprising an associated slave central processing unit (slave-CPU), each slave-CPU being adapted to control at least one adjustable operational parameter of its associated slave transceiver in response to at least one characteristic of a received reverse radio frequency (RF) signal (Figure 5 and column 22, lines 7 – 23), and each slave transceiver being adapted to: i) receive the reverse RF signal (Figures 1 and 5 and column 9, lines 18 – 33); ii) process the received RF signal based on at least one of the adjustable operational parameters (Figure 5 and column 22, lines 7 – 23); and iii) generate a reverse slave signal; and (column 9, lines 18 – 33) b) a master transceiver coupled the plurality of slave transceivers (Figure 1 and column 9, lines 34 – 43), the master transceiver being adapted to: i) convey setting signals to the plurality of slave transceivers so as to set the adjustable operational parameters thereof (column 19, lines 41 – 58); ii) receive and process the reverse slave signals from the plurality of slave transceivers, so as to generate

corresponding reverse master signals (Figure 1 and column 10, lines 49 – 58 and column 9, lines 34 – 48); and iii) convey the reverse master signals to at least one [base station transceiver subsystem (BTS)] computer external to the region Figure 1 and column 9, lines 13 – 18).

Cook does not specifically teach of one base station transceiver subsystem (BTS).

In a related art dealing with wireless local area networks, Heiman teaches of a base station transceiver (column 2, lines 49 – 55).

It would have been obvious to one skilled in the art at the time of invention to have included into Cook's repeater system, Heiman's computer functioning as a base station transceiver, for the purposes of allowing improved selection by a mobile to an access point (or base station, as Cook states the two are the same in column 1, lines 28 – 32) for communication when in the access point's coverage, as taught by Heiman.

Regarding claim 3, Cook in view of Heiman, teach all the claimed limitations as recited in claim 1. Cook further teaches of further comprising a management unit adapted to convey instructions to the plurality of slave-CPU's to set at least one of the adjustable operational parameters of at least one of the slave transceivers to initial values (column 19, lines 45 – 58).

Regarding claim 4, Cook in view of Heiman, teach all the claimed limitations as recited in claim 3. Cook further teaches of wherein the master transceiver is coupled to the BTSs (Figure 1) and adapted to: b) generate corresponding forward master signals (column 19, lines 45 – 58 and column 10, lines 49 – 53); and c) convey the forward master signals to the plurality of slave transceivers (column 19, lines 45 – 58); and wherein each slave transceiver is adapted to: a) receive the forward master signals

Art Unit: 2684

(column 19, lines 45 – 58); and b) generate corresponding forward slave RF signals (column 19, lines 45 – 58 and column 20, lines 1 – 10); and wherein each slave-CPU is adapted to: a) monitor the generated forward slave signals (column 19, lines 45 – 58 and starting column 20, line 60 and ending column 21, line 4); b) to adjust at least one of the operational parameters from an initial value in response to the generated forward slave signals (column 19, lines 45 – 58 and starting column 20, line 60 and ending column 21, line 4 and column 22, lines 7 – 22).

Cook does not specifically teach of a) receive and process forward RF signals from the BTSs (note Cook makes provisions of using an alternate form of link for the LAN or WAN backbone in column 13, lines 4 – 7).

In a related art, Heiman teaches of a) receive and process forward RF signals from the BTSs (column 1, lines 28 – 40).

It would have been obvious to one skilled in the art at the time of invention, to have replaced Cook's wired local area communications link with Heiman's wireless local area communications link, for the purposes of added mobility and elimination of no coverage areas, as taught by Heiman.

Regarding claim 5, Cook in view of Heiman, teach all the claimed limitations as recited in claim 4. Cook further teaches of wherein the slave-CPU is further adapted to adjust at least one of the operational parameters from an initial value in response to the generated reverse slave signals (column 19, lines 45 – 58 and column 22, lines 7 – 22).

Regarding claims 6 and 14, Cook in view of Heiman, teach all the claimed limitations as recited in claims 4 and 13. Cook further teaches of wherein the master transceiver comprises a master-CPU which is adapted to monitor at least some of the

Art Unit: 2684

slave-CPU's (column 19, lines 45 – 58) and, in response to the slave-CPU's and to initial instructions received from the management unit, to vary at least one of a group comprising a number of BTSs communicating with the master transceiver and at least one channel parameter of each BTS (column 10, lines 59 – 64).

Regarding claim 15, Cook teaches of an apparatus for wireless communication, comprising: a) a first plurality of slave transceivers which are spatially separated from one another within an enclosed region (Figure 1 and column 1, lines 44 – 57), each of which slave transceivers is adapted to receive a reverse radio frequency (RF) signal generated by a mobile transceiver within the region (Figure 1 and column 9, lines 8 – 17) and to process the RF signal, based on at least one adjustable operational parameter, so as to generate a reverse slave signal (column 22, lines 7 – 23), each of the slave transceivers comprising an associated slave central processing unit (slave-CPU) which is adapted to control at least one of the adjustable operational parameters of the slave-CPU's associated slave transceiver in response to at least one characteristics of the reverse RF signal (column 22, lines 7 – 23); and b) a second plurality of master transceivers, which are coupled to receive and process the reverse slave signals from the first plurality of slave transceivers so as to generate corresponding reverse master signals (Figures 1 – 3 and column 9, lines 25 – 39), and to convey the reverse master signals to a third plurality of computers [base station transceiver subsystems (BTSs)] external to the region (Figures 1 – 3 and column 9, lines 34 – 48), and which are adapted to convey setting signals to the first plurality of slave transceivers so as to set the adjustable operational parameters thereof (column 10, lines 49 – 58).

Cook does not specifically teach of base station transceiver subsystems (BTSs).



In a related art dealing with wireless local area networks, Heiman teaches of base station transceiver subsystems (BTSSs) (column 2, lines 49 –55).

It would have been obvious to one skilled in the art at the time of invention to have included into Cook's repeater system, Heiman's computer functioning as a base station transceiver, for the purposes of allowing improved selection by a mobile to an access point (or base station, as Cook states the two are the same in column 1, lines 28 – 32) for communication when in the access point's coverage, as taught by Heiman.

2. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook et al. (Cook, US Patent No. 6,005,884) in view of Heiman et al. (Heiman, US Patent No. 6,002,918) or Cook et al. (Cook, US Patent No. 6,005,884) as applied to claims 1 and 7 above, respectively, and further in view of Ames (Ames, US Patent No. 5,233,626).

Regarding claims 2 and 11, Cook in view of Heiman, teach all the claimed limitations as recited in claims 1 and 7. Cook further teaches of diversity antennas (starting column 28, line 66 and ending column 29 line 10). Cook in view of Heiman do not specifically teach of wherein the plurality of slave transceivers comprises at least one diversity transceiver and at least one main transceiver, wherein the RF signals received by the diversity transceivers are substantially different from the RF signal received by the main transceivers.

In a related art dealing with spread spectrum receivers in repeaters, Ames teaches of wherein the plurality of slave transceivers comprises at least one diversity transceiver and at least one main transceiver, wherein the RF signals received by the diversity

Art Unit: 2684

transceivers are substantially different from the RF signal received by the main transceivers (Figure 2 and column 4, lines 51 – 56).

It would have been obvious to one skilled in the art at the time of invention to have included into Cook and Heiman's repeater system, Ames' diversity receivers, for the purposes of mitigating multi-path interference (especially as the system is indoor) and thus improving performance, as taught by Ames.

3. Claim 9, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook et al. (Cook, US Patent No. 6,005,884) as applied to claim 7 and 12 above, and further in view of Heiman et al. (Heiman, US Patent No. 6,002,918).

Regarding claim 9, Cook teaches all the claimed limitations as recited in claim 7. Cook further teaches of further comprising; a) generating an alternative frequency (AF) reverse slave signal in the receiving slave transceiver in response to the reverse RF signal (Figures 2 and 3 and column 14, line 42 – 56); b) receiving the AF reverse slave signal in a master transceiver (Figure 2 and 3, column 15, lines 15 – 33); c) in the receiving master transceiver in which the reverse slave signals were received frequency converting the received AF reverse slave signal to an RF reverse master signal (Figure 3 and column 16, lines 52 – 60); d) conveying the reverse master signal to a computer [base station transceiver subsystem (BTS)] external to the region (Figures 2 and 3 and starting column 18, line 63 and ending column 19, line 8).

Cook does not specifically teach of to base station transceiver subsystem (BTS) (note Cook makes provisions of using an alternate form of link for the LAN or WAN backbone in column 13, lines 4 – 7).

Art Unit: 2684

In a related art dealing with wireless local area networks, Heiman teaches of a base station transceiver (column 2, lines 49 –55).

It would have been obvious to one skilled in the art at the time of invention to have included into Cook's repeater system, Heiman's computer functioning as a base station transceiver, for the purposes of allowing improved selection by a mobile to an access point (or base station, as Cook states the two are the same in column 1, lines 28 – 32) for communication when in the access point's coverage, as taught by Heiman.

Regarding claim 10, Cook in view of Heiman, teach all the claimed limitations as recited in claim 9. Cook further teaches of comprising; a) conveying a setting signal from the receiving master transceiver to the receiving slave transceiver; (column 19, lines 41 – 58 and starting column 20, line 60 and ending column 21, line 4 and column 22, line 7 – 23) and b) in response to the conveyed setting signal, adjusting, at least one operational parameter of the receiving slave transceiver (column 19, lines 41 – 58 and starting column 20, line 60 and ending column 21, line 4 and column 22, line 7 – 23).

Regarding claim 13, Cook teaches all the claimed limitations as recited in claim 12. Cook further teaches of comprising: b) generating forward master AF signals [in response to the received forward master RF signals] (Figures 1 – 3 and column 10, lines 49 – 53 and column 19, lines 45 – 58) conveying the forward master signals to the plurality of slave transceivers (Figure 1 –3 and column 19, lines 45 – 58), d) in the plurality of slave transceivers, receiving the forward master AF signals (Figure 1 –3 and 5 and column 19, lines 45 – 58); e) in the plurality of slave transceivers, generating forward slave RF signals in response to the received forward master AF signals (Figure 1 –3 and 5 and column 19, lines 45 – 58 and column 20 , lines 1 – 10); f) monitoring the

Art Unit: 2684

corresponding forward slave RF signals in each of the slave transceivers (column 19, lines 45 -58 and starting column 20, line 60 and ending column 21, line 4); and g) varying at least one of the operational parameters of each of the slave transceivers from their initial values, in response to the forward slave RF signals and reverse slave RF signals (column 19, lines 45 -58 and starting column 20, line 60 and ending column 21, line 4 and column 22, lines 7 - 22).

Cook does not specifically teach of receiving in the forward master RF signals from the BTS (note Cook makes provisions of using an alternate form of link for the LAN or WAN backbone in column 13, lines 4 - 7).

In a related art, Heiman teaches of receiving in the forward master RF signals from the BTS (column 1, lines 28 - 40).

It would have been obvious to one skilled in the art at the time of invention, to have replaced Cook's wired local area communications link with Heiman's wireless local area communications link, for the purposes of added mobility and elimination of no coverage areas, as taught by Heiman.

4. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook et al. (Cook, US Patent No. 6,005,884) in view of Heiman et al. (Heiman, US Patent No. 6,002,918) as applied to claim 15 above, and further in view of Brozovich et al. (Brozovich, US Patent No. 5,661,434).

Regarding claim 16, Cook in view Heiman, teach all the claimed limitations as recited in claim 15. Cook further teaches of communicates with at least one of the third plurality of BTSs (column 9, lines 44 - 48) and a master-CPU (column 19, lines 45 - 54)

Cook in view of Heiman do not specifically teach of wherein each of the master transceivers comprises a switch and a third plurality of gain elements and wherein the master-CPU of each master transceiver is adapted to operate the switch and the third plurality of gain elements of the associated master transceiver so that the associated master transceiver communicates via the third plurality of gain elements.

In a related art dealing with wireless local area network amplifiers, Brozovich teaches of wherein each of the master transceivers comprises a switch and a third plurality of gain elements (Figures 2A and 2B and starting column 1, line 63 and ending column 2, line 10) and wherein the master-CPU of each master transceiver is adapted to operate the switch and the third plurality of gain elements of the associated master transceiver so that the associated master transceiver communicates via the third plurality of gain elements (Figures 2A and 2B and starting column 1, line 63 and ending column 2, line 10).

It would have been obvious to one skilled in the art at the time of invention to have included into Cook and Heiman's repeater system, Brozovich's switched amplifiers, for the purposes of higher efficiency amplification, thus resulting in prolonged battery life, as taught by Brozovich.

Regarding claim 17, Cook, in view of Heiman and Brozovich, teach all the claimed limitations as recited in claim 16. Cook further teaches of wherein each of the master transceivers is adapted to adjust a bandwidth of at least some of the slave transceivers responsive to the number of BTSs being communicated (column 16, lines 37 – 51) and Brozovich further teaches of with via the third plurality of gain elements (Figures 2A and 2B and starting column 1, line 63 and ending column 2, line 10).


Art Unit: 2684


*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanmay S Lele whose telephone number is (703) 305-3462. The examiner can normally be reached on 9 - 6:30 PM Monday – Thursdays and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay A. Maung can be reached on (703) 308-7745. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

  
Tanmay S Lele  
Examiner  
Art Unit 2684

  
NAY MAUNG  
PRIMARY EXAMINER

tsl  
August 4, 2003